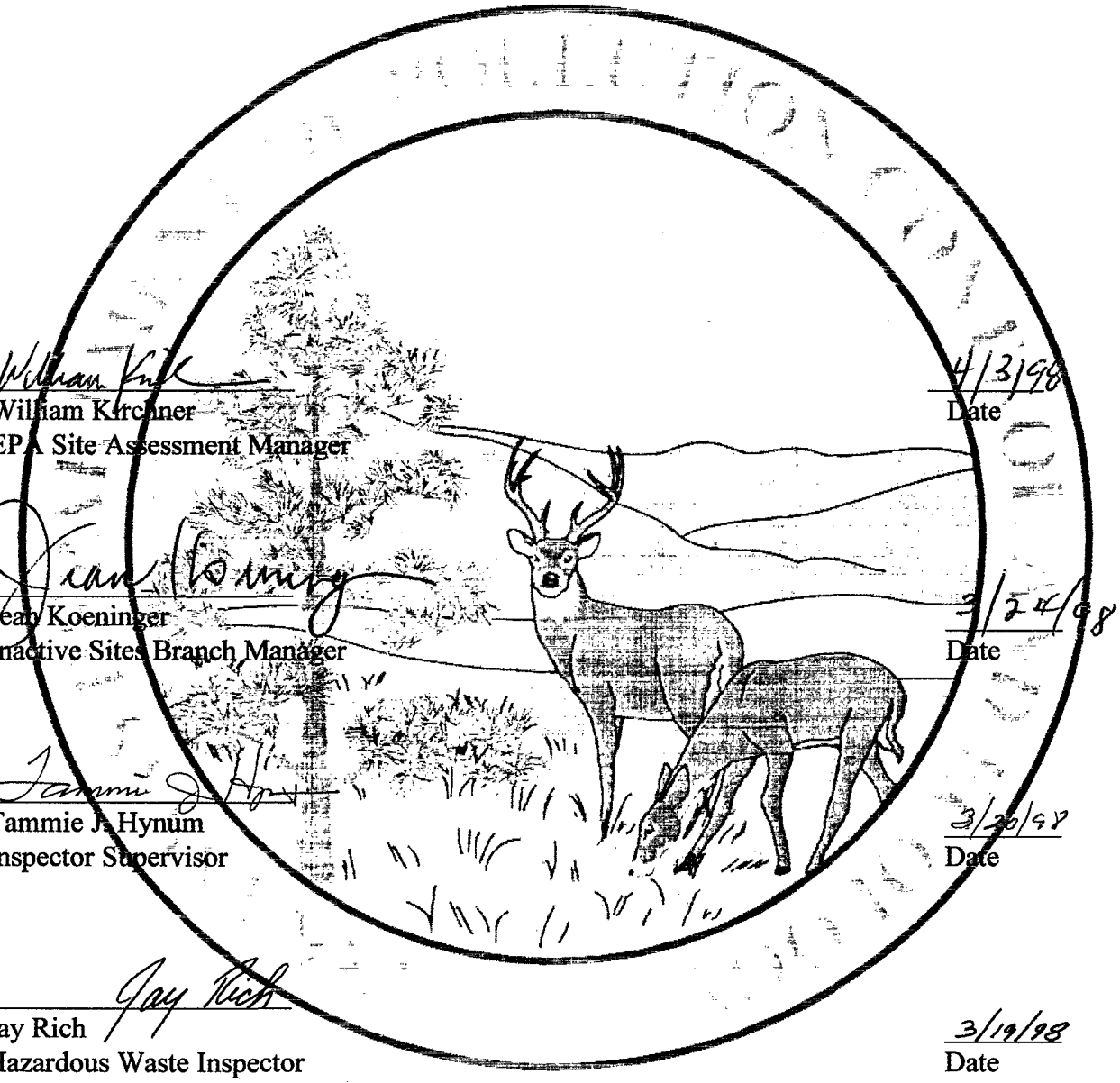
INTEGRATED SITE ASSESSMENT TASK WORK PLAN

CASTINGS USA, INC.
PINE BLUFF, JEFFERSON COUNTY, ARKANSAS
AR0002187987



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87075

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LIST OF ACRONYMS AND ABBREVIATIONS

ADPC&E	Arkansas Department of Pollution Control & Ecology
CLASS	Contract Laboratory Analytical Services Support
EPA	United States Environmental Protection Agency
ESI	Expanded Site Inspection
HASP	Health and Safety Plan
HRS	Hazard Ranking System
HSC	Health and Safety Coordinator
ISA	Integrated Site Assessment
MSL	Above Mean Sea Level
NPDES	National Pollutant Discharge Elimination System
NPL	National Priorities List
PA	Preliminary Assessment
RCRA	Resource Conservation and Recovery Act
QA	Quality Assurance
QAPP	Quality Assurance Project Plan
QC	Quality Control
SAP	Sampling and Analysis Plan
SI	Site Inspection
SOW	Statement of Work
USGS	United States Geological Survey
SAM	EPA Site Assessment Manager

1.0 INTRODUCTION

The Arkansas Department of Pollution Control and Ecology (ADPC&E), Hazardous Waste Division, Inactive Sites Branch, has been tasked by the United States Environmental Protection Agency (USEPA) Region 6 to conduct an Integrated Site Assessment (ISA) at the Castings USA site in Pine Bluff, Jefferson County, Arkansas (AR0002187987). This Task Work Plan (TWP) provides a detailed description of the site and discusses the objectives of the ISA, sampling strategies and rationale, health and safety guidelines, quality assurance/quality control (QA/QC) procedures, and project team member responsibilities.

The ISA is the first phase of investigation to collect and analyze waste and environmental samples in the EPA's ongoing screening process of evaluating hazardous waste sites for further action in the Superfund program. The objective of the ISA is to define site waste characteristics, contaminant sources, and exposure pathways by collecting and analyzing samples needed to support the Hazard Ranking System (HRS) evaluation process for the site.

To meet the objectives of the ISA, ADPC&E personnel will: (1) review available information, including analytical data, (2) conduct field work to inspect the site and collect samples, and (3) evaluate all data and prepare the ISA report. The pathway of concern for the Castings USA site is the soil exposure pathway. This ISA will build on the background information collected during a previous Site Inspection (SI) conducted at Fox Brother's Warehouse, a neighboring facility, in March 1997 by ADPC&E, and will also include available file information at ADPC&E.

This TWP outlines the sequence of tasks and subtasks necessary to conduct an ISA at the Castings USA site. The Sampling and Analysis Plan (SAP) is in Section 5. The Health and Safety Plan (HASP) is in Section 6. The Quality Assurance Project Plan (QAPP) is in Section 7.

2.0 SITE BACKGROUND

The Castings USA site location, description, waste characteristics, and concerns are summarized in this section. The site background information presented in this TWP was obtained from information previously compiled on the Castings USA site and a recent site reconnaissance. This information is contained in the ADPC&E and EPA Region 6 files.

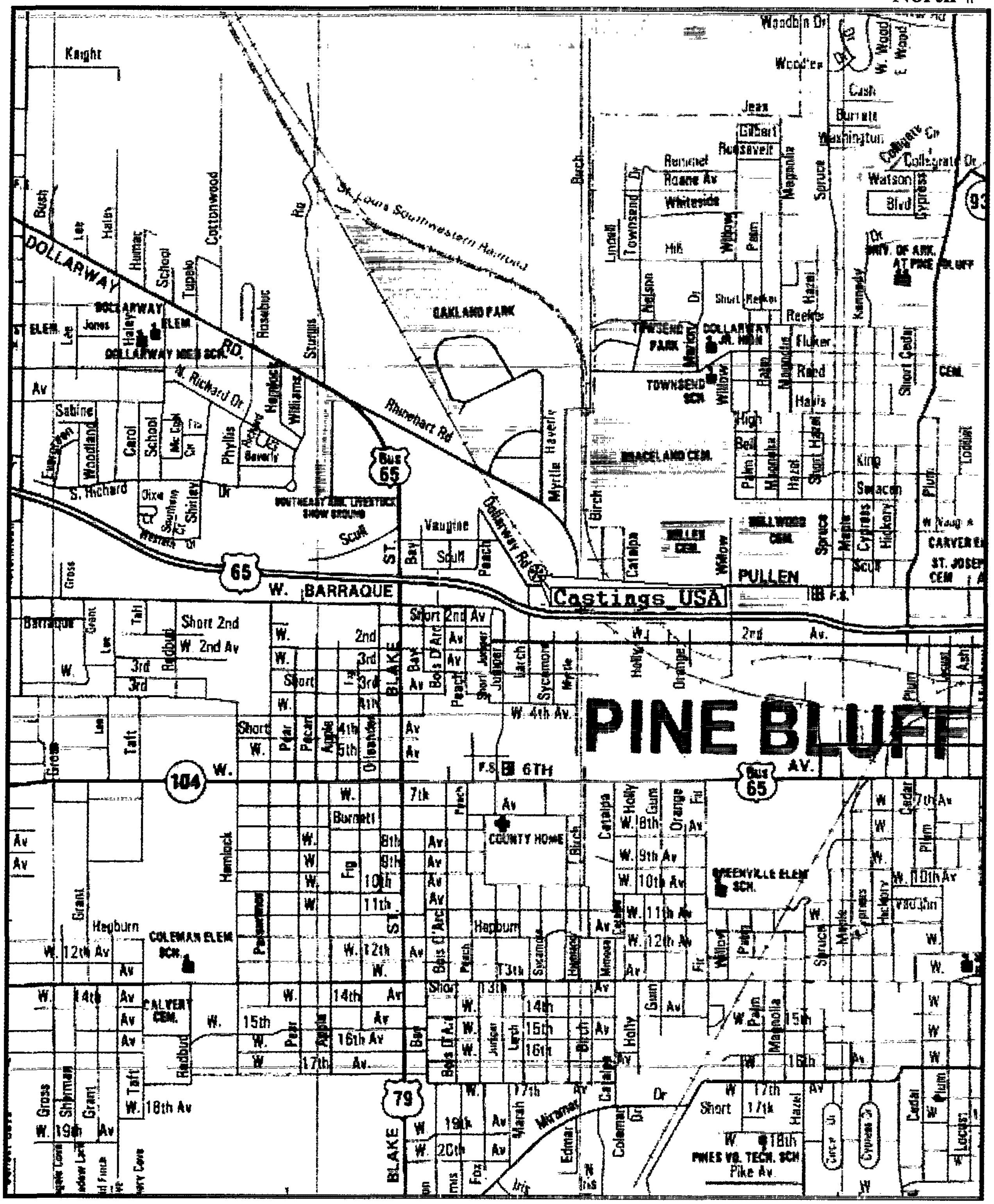
2.1 OPERATIONAL HISTORY

The Castings USA site is located at 3211 West Pullen in Pine Bluff, Jefferson County, Arkansas (Figure 1). The geographical coordinates of the Castings USA, Inc. site are latitude 34^0 12' 30" North and longitude 92^0 2' 12" West in Range 10 West, Township 5 South, Section 36 (Reference 1) (Figure 2).

The Castings USA, Inc. is in Pine Bluff, Arkansas and is currently owned by Raymond and Acie Johnson. The Castings USA site is a former steel casting facility. The foundry was initially known as the Dilley Foundry, which began operations in 1922. The Dilley Foundry manufactured iron and steel. In the early 1940's, the Dilley Foundry was purchased by Standard Brake Shoe and Foundry Company, which manufactured cast steel. In October 1988, Raymond and Acie Johnson purchased the site and continued operations under the name of Castings USA, Inc. In 1996, the Castings USA

City of Pine Bluff, Arkansas Map
Location of Castings USA

North ⇑



Map Not To Scale

Figure 1

1-Mile Radius Map of Castings USA
7.5 Topographic Map
Pine Bluff, Arkansas

North ⇑

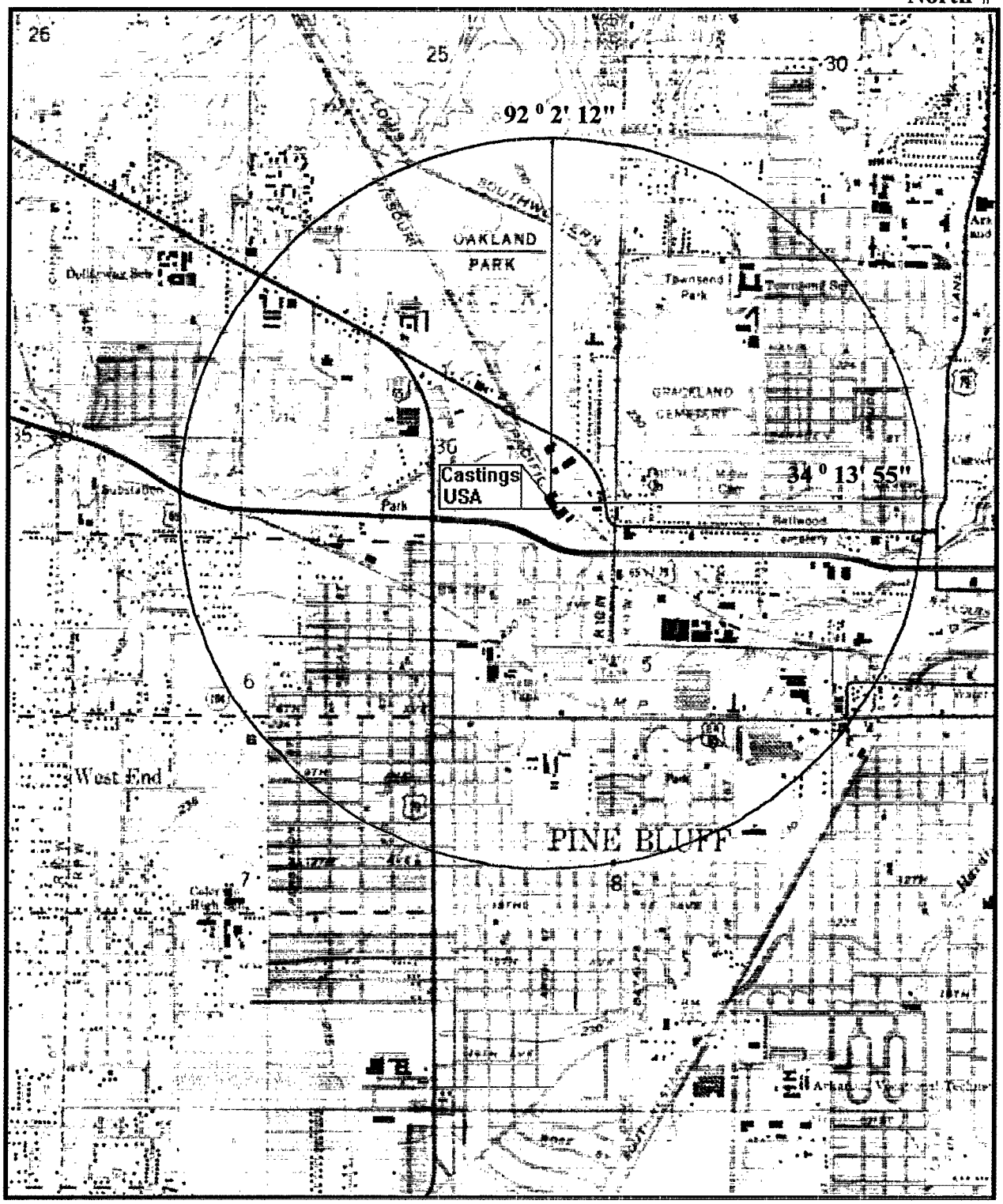


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Figure 2

facility ceased operations. During a February 1998 site reconnaissance, Raymond Johnson, president of the facility, revealed that a contractor will be on site in the near future to make repairs to the roof and to clean up the remaining materials left on site after operations ceased. (Reference 2).

The Castings USA facility conducted steel casting operations. The facility purchased scrap steel and added 0.4 % to 0.8 % chrome, nickel, and molybdenum alloys to the steel. The scrap steel and alloy mixture was melted in an electric arc furnace. Oxygen was injected into the molten steel in the electric furnace to dislodge the slag and adjust the chemistry of the metal. When the melting process was complete, the molten metal was tapped and poured into a ladle which was preheated by natural gas. Cores of sand and oil were formed and baked in natural gas fired ovens. The metal was poured into the cores and allowed to partially cool under controlled conditions. When sufficiently cooled, the metal parts, called castings, were placed on a vibrating grid and the sand core was removed by shaking. The sand was reused in the mold manufacturing process. The castings were shot blasted with coarse steel shot to remove any remaining sand. Particulate emissions from this process were controlled by a baghouse. The castings were then baked in a furnace fired by natural gas. After baking, the castings were again shot blasted with fine steel shot to remove scale. These emissions were also controlled by a baghouse. The sand molds were a mixture of corn flour, bentonite, and water. After the casting process, the sand became black with ashes from the cereal mixture. Excess casting waste was sent back to the furnace for remelting. Excess sand waste was given away or taken to a landfill (Reference 2; Reference 3).

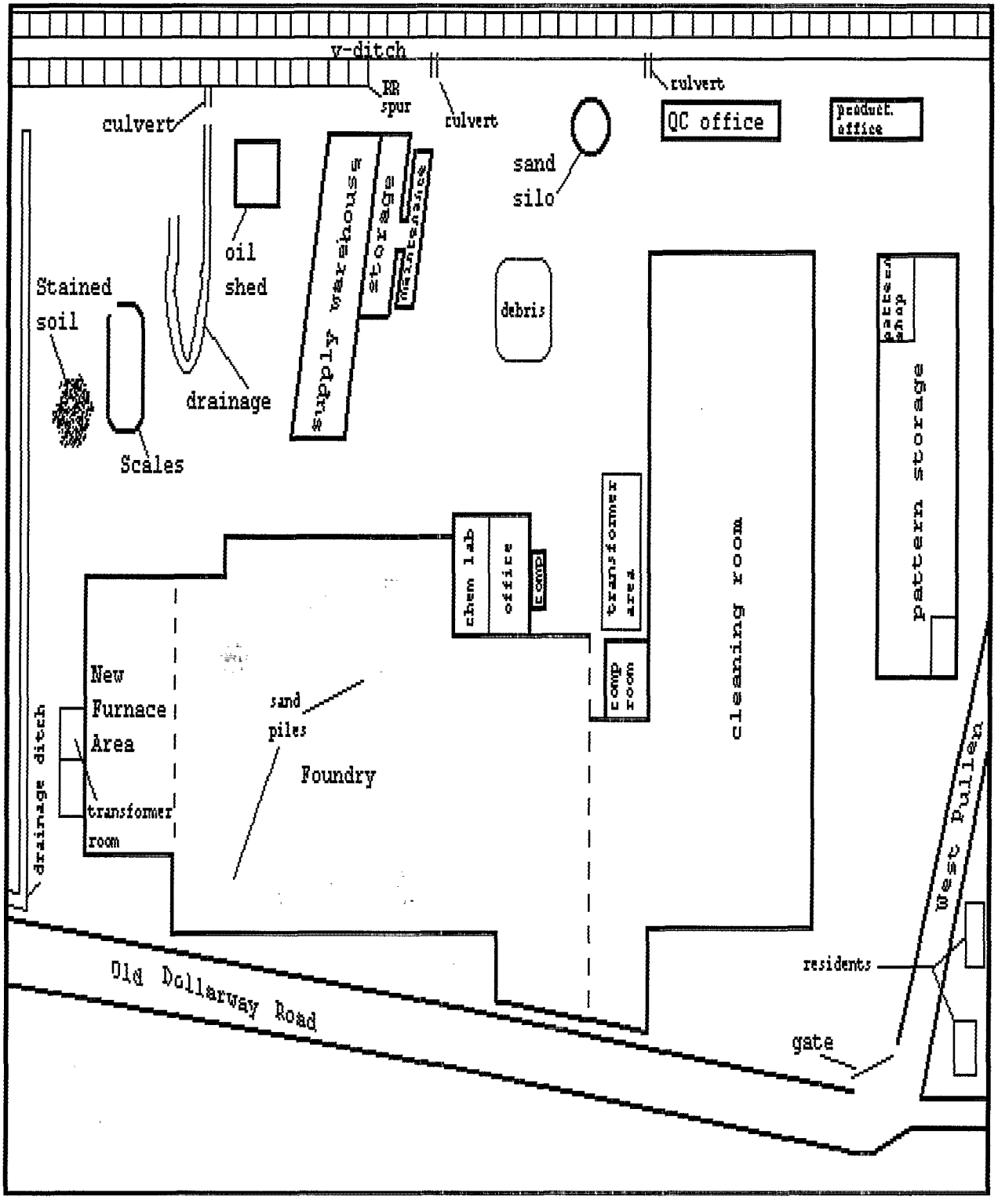
2.2 WASTE CHARACTERISTICS AND REGULATORY INVOLVEMENT

On February 12, 1998, ADPC&E personnel conducted a site reconnaissance at the Castings USA facility. ADPC&E became aware of the Castings USA facility while conducting a site inspection at the adjacent property, Fox Brothers Warehouse. In the area near Castings USA, the fences were observed as being rusty and several metal contaminants were detected above three times background at the Fox Brothers Warehouse site in this area. The metal contaminants found in this area are possibly related to the rusty fence. The 1998 on site reconnaissance revealed a main office building, a production office, a quality control (QC) office, a pattern storage building, a cleaning room area, the foundry area, a furnace area, a transformer area, a supply warehouse, a maintenance shop, an oil shed, a sand silo, several areas of debris and waste foundry sand piles. The pattern storage building has a partial dirt and concrete floor. The foundry building has a concrete floor covered with debris, dirt and foundry sand. The roof of the foundry building is in poor condition and leaks. The processing equipment has been removed from this building. The removal of the equipment left areas of holes in the floor which were filled with sand and covered with concrete. Several partially filled drums of unknown contents are present in the supply warehouse. One of these drums appeared to have leaked. A hardened gel-like material was observed around this drum. The oil shed contained several partially filled drums of oil. One of these drums was labeled "transformer oil". A transformer area was observed on the east side of the foundry building. An area of stained soil is located on the north side of the site. The facility is currently inactive (Reference 2) (Figure 3).

Castings USA was issued an air permit (# 526-AR-3) by ADPC&E on September 21, 1994. In approximately 1990, Castings USA, Inc. was fined by the USEPA for failing to notify for the storage of metal alloys. A Potential Hazardous Waste Site Identification Form for Castings USA was

CASTINGS USA, INC., SITE MAP

NORTH ↖



MAP NOT TO SCALE

FIGURE 3

completed on October 2, 1997. The Castings USA, Inc. site identification number is AR0002187987 (Reference 2, Reference 3; Reference 4).

3.0 SITE CONDITIONS

Current site and area conditions, including topography, soils, geology, hydrogeology, climatology, meteorology, are characterized in this section.

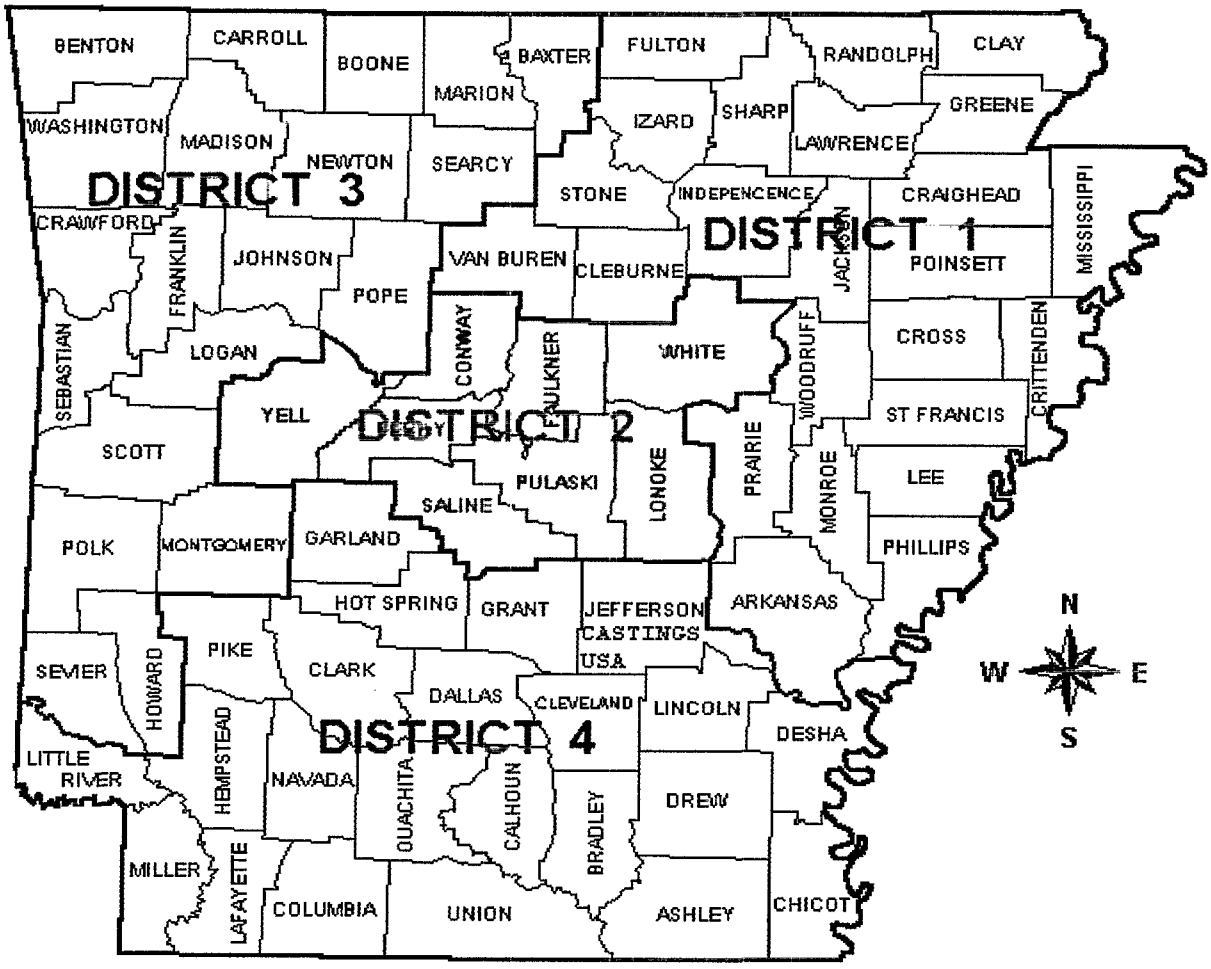
3.1 TOPOGRAPHY

The Castings USA site is located in Pine Bluff, Jefferson County, Arkansas (Figure 1). Jefferson County, Congressional District 4, is located in southeastern Arkansas and is square in shape (Figure 4). Jefferson County is located within the Gulf Coastal Plain of Arkansas and is bordered by seven (7) Arkansas counties (Figure 5). The Castings USA facility is approximately six (6) acres in size. The property is rectangular in shape and is bordered on the south by West Pullen Street and a sparse residential area, on the north by Missouri Pacific Railroad, on the west by Old Dollarway Road and a woodland area, and on the east by West Pullen Street, sparse residential, and commercial properties (Reference 2) (Figure 3).

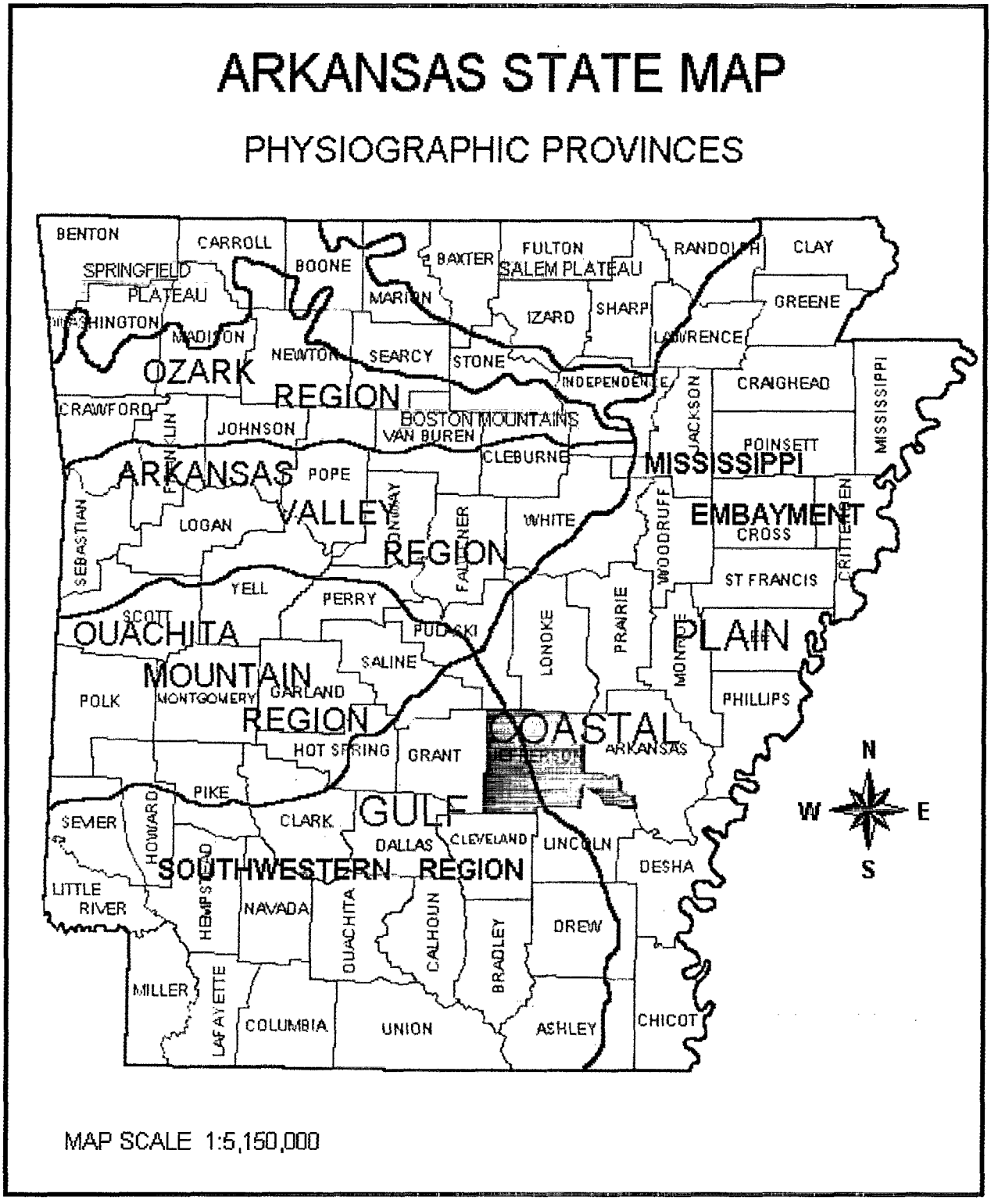
The topography of the Castings USA site is relatively flat. Overland drainage from the site flows in two directions. From the northeast side of the facility, the property drains northeastward to a "V-ditch" along the Missouri Pacific Railroad. From the northwest and southwest sides of the facility, the property drains to a ditch that flows northwesterly into a storm drain. The railroad "V-ditch" intersects an unnamed intermittent tributary about 0.75 miles southeast of the site. The unnamed

ARKANSAS STATE MAP

CONGRESSIONAL DISTRICTS



MAP NOT TO SCALE **FIGURE 4**


ARKANSAS STATE MAP
PHYSIOGRAPHIC PROVINCES
BENTON
CARROLL
BOONE
BAXTER
FULTON
SALEM PLATEAU
RANDOLPH
CLAY
SPRINGFIELD PLATEAU
MARION
IZARD
SHARP
GREENE
WASHINGTON
MADISON
NEWTON
SEARCY
STONE
LAWRENCE
OZARK REGION
INDEPENDENCE
CRAIGHEAD
MISSISSIPPI
CRAWFORD
FRANKLIN
JOHNSON
BOSTON MOUNTAINS
VAN BUREN
JACKSON
POINSETT
CLEBURNE
MISSISSIPPI EMBAYMENT
ARKANSAS VALLEY REGION
POPE
CONWAY
FAULKNER
WHITE
WOODRUFF
CROSS
CRITTENDEN
SEBASTIAN
LOGAN
YELL
PERRY
ST FRANCIS
SCOTT
OUACHITA MOUNTAIN REGION
PULASKI
LONOKE
PRAIRIE
MONROE
COASTAL PLAIN
SALINE
POLK
MONTGOMERY
GARLAND
PHILLIPS
HOT SPRING
GRANT
JEFFERSON
ARKANSAS
PIKE
SEVIER
HOWARD
CLARK
GULF
DALLAS
CLEVELAND
LINCOLN
DESHA
SOUTHWESTERN REGION
LITTLE RIVER
HEMPSTEAD
NAVADA
OUACHITA
CALHOUN
BRADLEY
DREW
MILLER
LAFAYETTE
COLUMBIA
UNION
ASHLEY
CHICOT
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W
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FIGURE 5

intermittent tributary drains to Lake Pine Bluff approximately one mile east of the site. Lake Pine Bluff, a controlled lake, does not have a flow rate (Reference 5; Reference 6). During overflow, drainage from Lake Pine Bluff flows to Lake Lanhofer, an oxbow lake on the western side of the Arkansas River. There is no flow rate for Lake Lanhofer (Reference 6). Drainage from Lake Lanhofer is northeasterly to the Arkansas River. The Corp of Engineers does not measure the flow rate of the Arkansas River at Pine Bluff at Lock and Dam 4 gauging station, upstream from where Lake Lanhofer drains to the Arkansas River. Drainage area for the Arkansas River at Lock and Dam 4 at Pine Bluff is 158,542 square miles. The closest drainage area for the Arkansas River to Pine Bluff's Lock and Dam 4 is located about 40 miles upstream at Little Rock's Murray Lock and Dam (Reference 5). The Arkansas River at Murray Lock and Dam has a drainage area of 158,030 square miles. Over a 63 year period, the average flow rate at Murray Lock and Dam is 42,320 cubic feet per second (cfs) (Reference 7) (Figure 6).

The Castings USA site lies in an area determined to be in "Zone C" flood plain. "Zone C" refers to areas of minimal flooding. "Minimal flooding," according to Arkansas Soil and Water Conservation, means the area is not normally subject to flooding and is not in a 100 or 500-year designated flood zone (Figure 7).

3.2 SOILS

In the vicinity of the Castings USA site, the general soil type is the Calloway-Grenada-Henry association. These soils consist of broad flats broken up by low ridges rising one (1) to 10 feet higher than the flats. The natural drainage ways are mainly slow-flowing, intermittent streams.

SURFACE WATER DRAINAGE MAP-CASTINGS USA SITE
7.5 MINUTE TOPOGRAPHIC MAP-PINE BLUFF, ARKANSAS

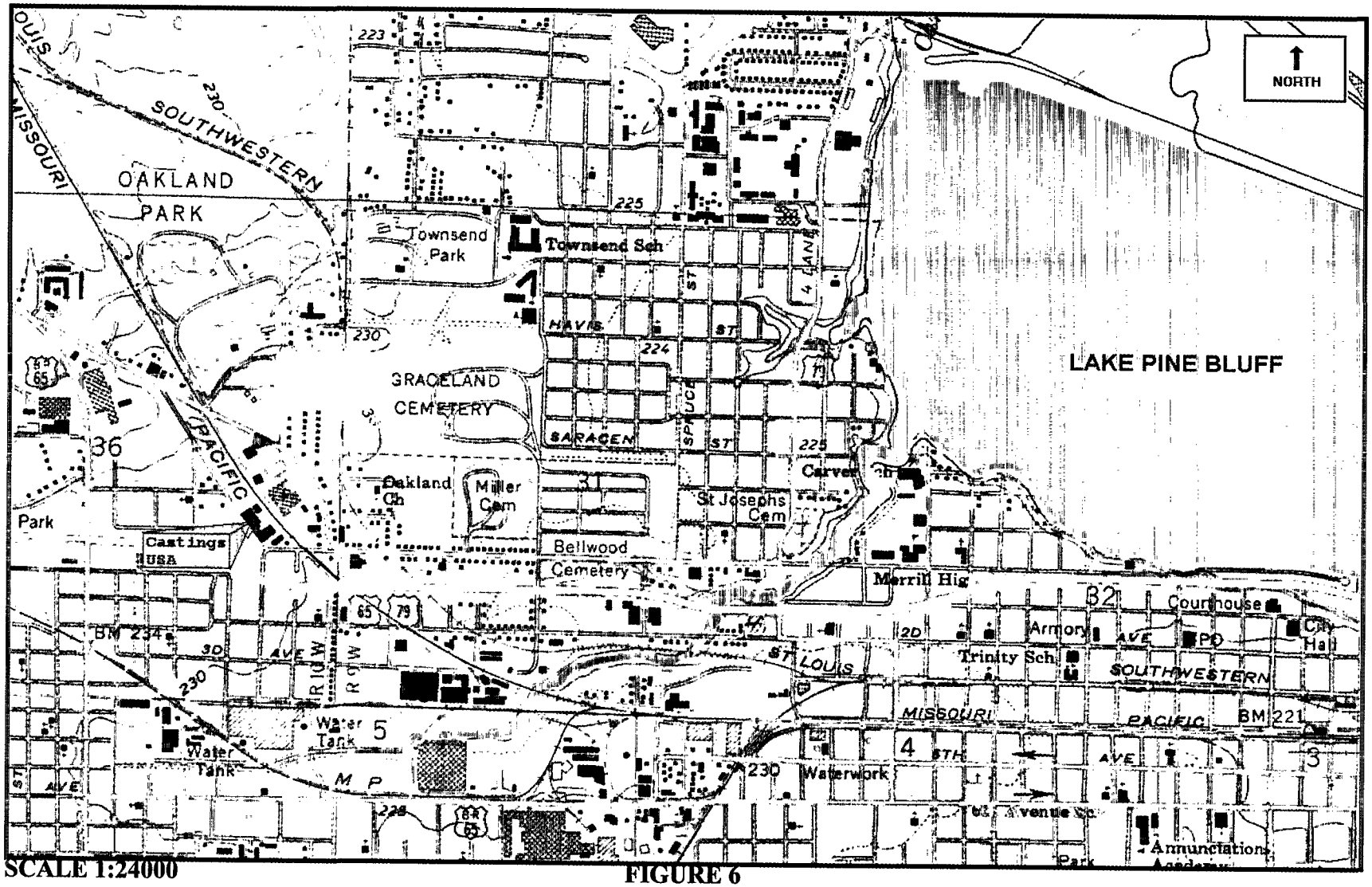

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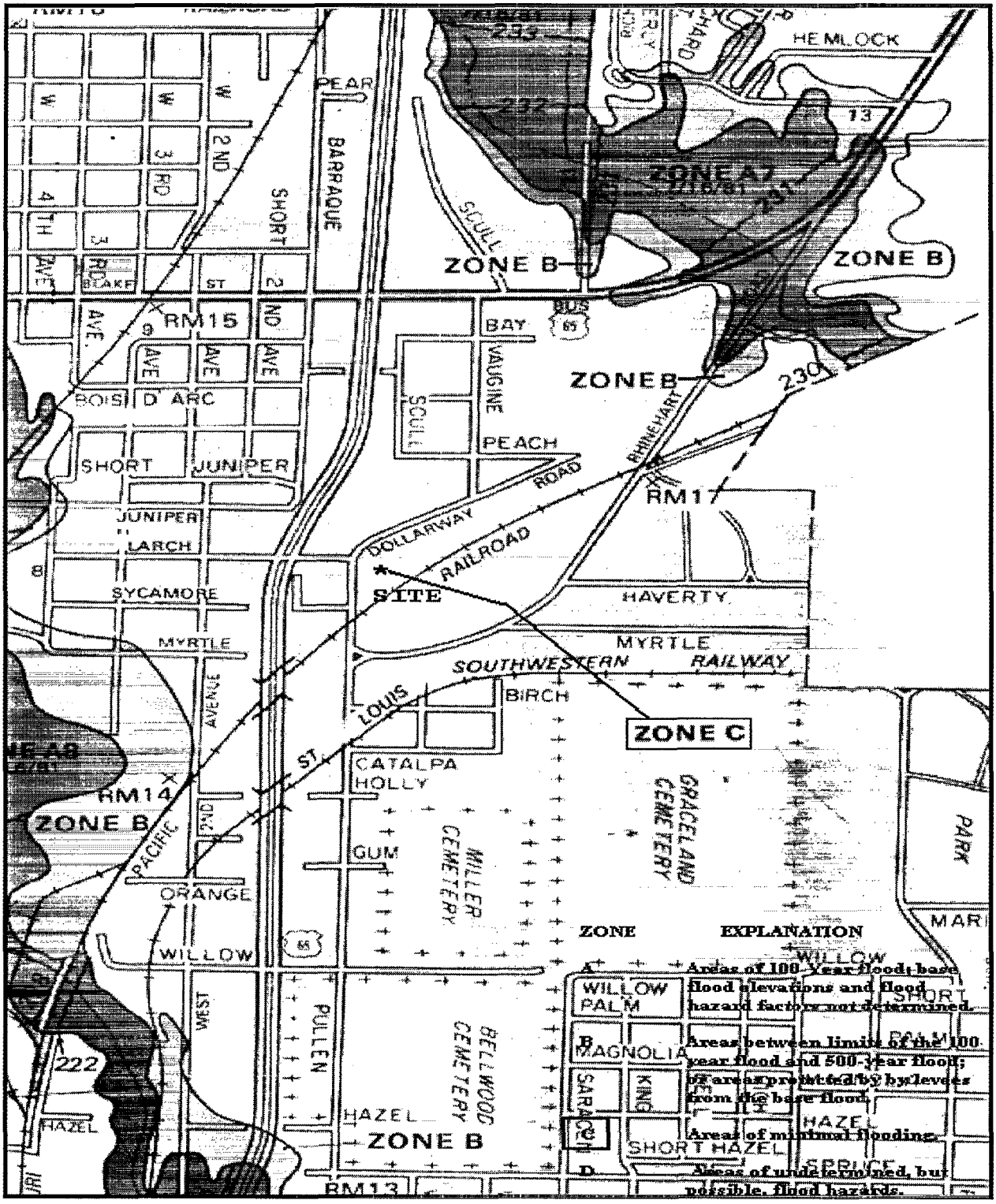
FIGURE 6

SITE LOCATION AND FLOOD PLAIN MAP

NORTH ↗



MAP NOT TO SCALE

FIGURE 7

About 40% of the Calloway-Grenada-Henry soil association is Grenada soils, 15% is Henry soils, and the remaining 15% is soils of minor extent and urban lands. This soil association is mainly wooded with a few small farms on the better drained soils. Wetness and erosion are the main limitations to the use of these soils. Because of wetness, the Calloway and Henry soils have low potential for residential and urban uses (Reference 5, p. 16) (Figure 8).

The soil type found at the Castings USA site is classified as Calloway-Urban soil complex. This soil complex is characterized by somewhat poorly drained, level, and nearly level Calloway soils and Urban land of Calloway soil material origin. Soil slopes range from zero (0) to three (3) percent. Calloway soils are classified as fine-silty, mixed, thermic Glossaquic Fragiudalfs. Calloway soils are moderate in natural fertility. They are strongly acidic throughout except the surface layer in limed areas. Permeability is slow with available water capacity high. The water table is perched above the fragipan (i.e., a loamy, brittle subsurface horizon low in porosity and content of organic matter and low or moderate in clay but high in silt or very fine sand) during periods of high rainfall. Calloway soils are saturated with water late in winter and early in spring. Typically, Calloway soils have a layer of brown silt loam about six (6) inches thick. The Calloway series soils formed in thick deposits of windblown silts on broad, level and nearly level loessial plains. The upper part of the subsoil is yellowish brown, mottled silt loam extending to a depth of 21 inches. Below this is a firm, brittle fragipan. This fragipan is light yellowish brown, mottled silt loam that is compact and brittle and extending down to a depth 51 inches; and yellowish brown and grayish brown, mottled silt loam that is compact and brittle and extends to a depth of 75 inches or more (Reference 5, pp.16, 17) (Figure 9).

GENERAL SOIL MAP
CASTINGS USA, INC. SITE

NORTH ⇑

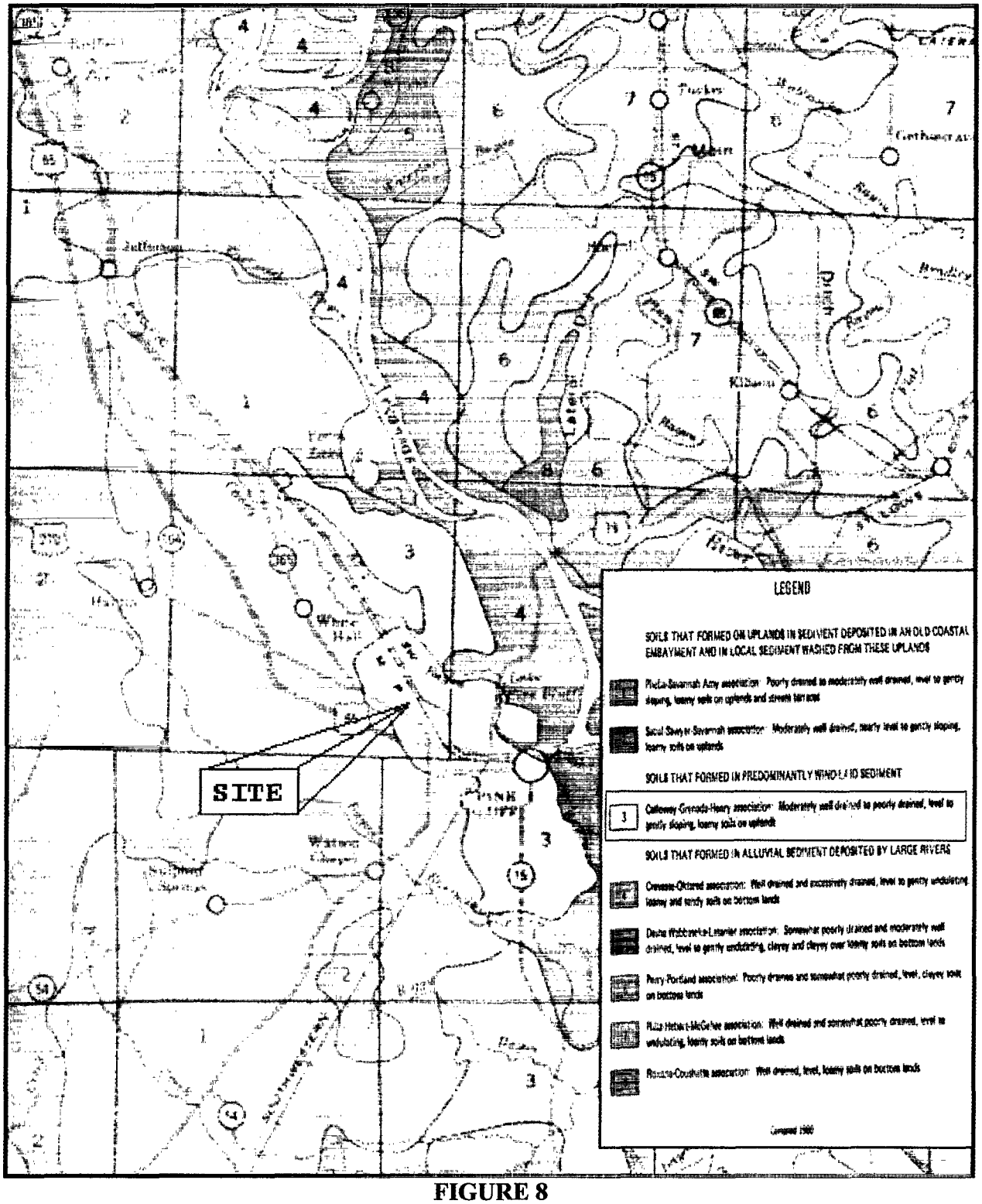


FIGURE 8

SPECIFIC SOIL MAP
CASTINGS USA, INC. SITE

NORTH ⇑

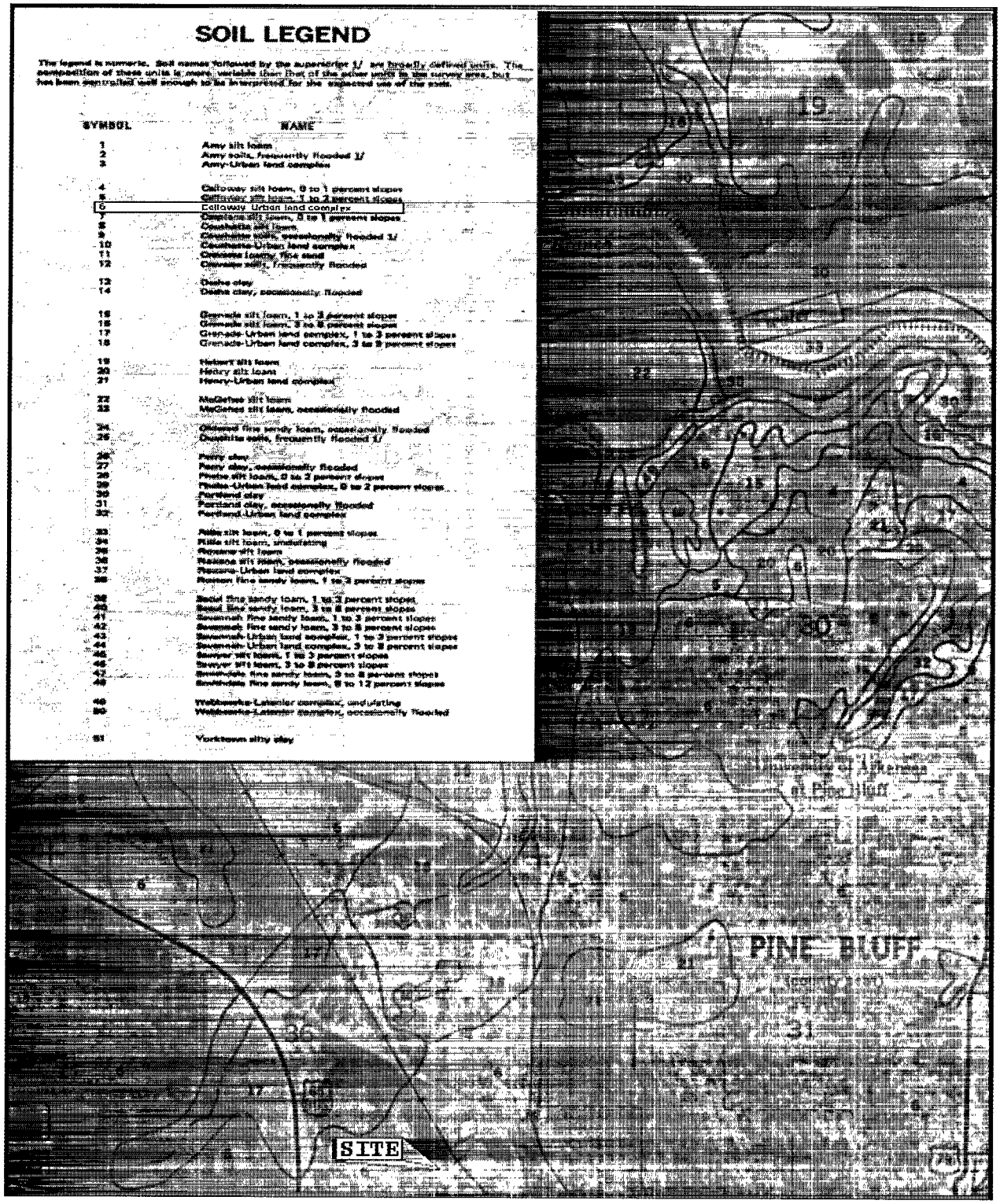


FIGURE 9

3.3 GEOLOGY

The Castings USA site lies within the Gulf Coastal Plain of Arkansas (Figure 5). Land surface of the Gulf Coastal Plain is a southward-sloping plain and is rolling and slightly hilly. It occupies about 27,370 square miles, or about 52 percent of the state's total area. Most elevations range from 100 to 700 feet above mean sea level (MSL). The Gulf Coastal Plain is subdivided into the Mississippi Embayment and the Southwestern Region (Reference 5, p. 7) (Figure 5).

The Castings USA site is located in the Southwestern Region (Figure 5). The West Gulf Coastal Plain is characterized by rocks of sedimentary origin with a small body of igneous rocks cropping out northwest of the site. The closest outcrop of igneous rock is south of Little Rock, Arkansas about 20 miles from the site. Most of the rocks of the Coastal Plain are poorly cemented, and none of the beds have been greatly deformed (Reference 5, p. 7).

In Jefferson County, the younger rocks normally dip to the southeast and tend to thicken in that direction. Therefore, the older formations have a steeper dip than younger formations. Rocks of the Paleozoic age out crop about 18 miles northwest of Jefferson County. The Paleozoic rocks are relatively old, well compacted, and folded, and are considered basement rocks (Reference 5, p. 7).

3.4 HYDROGEOLOGY

The subsurface geology of Jefferson County is similar to other counties in the Gulf Coastal Plain in Arkansas having a basement composed of relatively old, well-consolidated, folded rocks unconformably overlain by strata of unconsolidated material. In Jefferson County, the

unconsolidated rocks range in total thickness from a little more than 2,000 to more than 4,000 feet. Only unconsolidated rocks less than 2,000 feet deep are important for water supply. All the ground water used at the present comes from shallower depths and it is unlikely any ground water of a satisfactory quality can be obtained from depths greater than 2,000 feet. Rocks of the Mesozoic era in Jefferson County unconformably overlie Paleozoic formations. Some of the Mesozoic rocks might yield water to wells. However, any water from Mesozoic deposits would likely be highly mineralized and not suitable for ordinary use. Paleocene deposits unconformably overlie the Mesozoic rocks. The Midway Formation overlies the rocks of the Mesozoic era. The Midway Formation, about 500 feet thick, is an unlikely source of water due to the large amounts of clay. Overlying the Paleocene are Eocene deposits. The Eocene series in order from oldest to youngest are: Wilcox Formation, Cane River Formation, Sparta Sand Formation, Claiborne Group Formations, and the Jackson Formation. In the part of Jefferson County where the Jackson Formation does not out crop, the Eocene rocks are overlain by deposits of the Quaternary system. The Quaternary deposits consist of Pleistocene terrace deposits, which occur largely west of the Arkansas River, between the river and the outcrop area of the Jackson Formation (Reference 5, p. 7, 8).

Community water wells in Pine Bluff and the surrounding areas draw water from the Sparta Sand Formation. Pine Bluff is the largest city in Arkansas depending solely on ground water for its community water supply. In the Pine Bluff vicinity, the Claiborne Group above the Sparta Sand consists of the Cockfield and Cook Mountain Formations. These formations consist mainly of silty to sandy clay with shale, ranging in thickness from 300 to 400 feet. Individual wells tapping the

Cockfield should yield up to 300 gallons per minute (GPM). Individual wells in the Cook Mountain Formation and the Jackson Group do not yield large amounts of water, but enough water for domestic use is available. Individual wells in a four-mile radius of the site are about 90 feet deep. In the Pine Bluff area, the top of the Sparta Sand Formation can be reached about 750 feet below land surface (500 feet below MSL). The Sparta Sand Formation consists of white to light-gray fine to medium-grained massive sands, with beds and lenses of light-gray or tan clay and sandy clay (Reference 5, p. 8, 9).

The upper and lower contacts of the Sparta Sand Formation are conformable and gradational. Correlations from place to place are difficult because the constituents change rapidly. This formation ranges from about 450 to 800 feet in thickness. The thickness varies considerably within short distances. The top of the Sparta Sand Formation is about 470 feet below sea level at Pine Bluff. Well yields up to 1500 gallons per minute can be expected from the Sparta Sand Formation. Depth to water ranges between 175 and 265 feet below land surface. Ground water flow in the Pine Bluff area is from a north to south direction. Ground water flow velocities average about 0.4 feet per day, with this aquifer's recharge occurring mainly through precipitation. The outcrop area is greater than 15 miles northwest of Castings USA. The recharge rate is estimated to be one to three inches per year. Little, if any, recharge occurs from overlying formations (Reference 5, p. 9).

3.5 CLIMATOLOGY AND METEOROLOGY

The climate in Jefferson County is characterized by long, hot summers because of the moist tropical air from the Gulf of Mexico that persistently covers the area. The average summer temperature is 71^0 Fahrenheit. Winters are cool and fairly short, with only a rare cold wave that moderates in one or two days. The average winter temperature is 57^0 Fahrenheit. The 1990 annual precipitation for Pine Bluff, Arkansas was 71.82 inches, a 21.58 inch positive deviation from normal (Reference 6).

4.0 PATHWAY ASSESSMENT

The HRS, which is used in screening sites for ranking on the National Priority List (NPL), defines four pathways for hazardous waste migration and exposure: (1) ground water migration pathway, (2) surface water migration pathway, (3) soil exposure pathway, and (4) air migration pathway. This section summarizes known information specific to the four exposure pathways for the Castings USA site.

4.1 GROUND WATER MIGRATION

The Castings USA site has no ground water wells on site. Castings USA is currently inactive. There are approximately 53,000 residents within a four (4)-mile radius of the site. About 52,000 residents rely on water supplied from community wells. These community water wells tap into the Sparta Sand aquifer with wells averaging about 700 to 1000 feet in depth. General Waterworks Corporation in Pine Bluff, Arkansas, supplies Pine Bluff and Hardin with drinking water. General Waterworks Corporation has three water treatment plants and eleven (11) wells. All wells draw from the Sparta Sand Formation. Nine (9) wells are located down gradient of the Castings USA site. These nine

wells serve approximately 5,500 people. The closest down gradient well is about 3,500 feet southeast of the facility. This well is 860 feet deep. There are four (4) other community wells within a one (1)-mile radius down gradient from the facility that tap the Sparta Sand Formation. The General Waterworks Corporation wells are all equally blended except for two (2) wells, located northwest and up gradient of the site. These two (2) wells alternate pumping about every 12 hours. The rest of the population within a four (4)-mile radius of the site, approximately 522 residents, relies on individual water wells drawn from the Cockfield and Jackson aquifers. These individual wells average 90 feet in depth and are northeast and up gradient of the site (Reference 2, Reference 5, pp. 7, 8, 9, 10, 11)

Watson Chapel Water Association and the Ladd Water Association are two community water systems located within 15-miles down gradient of the site. Watson Chapel Water Association uses two ground water wells to supply water to about 6,800 people. These wells are about 850 feet deep, in the Sparta Sand Formation. These wells are located west of Pine Bluff. The Ladd Water Association serves about 5,000 people. They have four wells, all about 1200 feet deep and draw water from the Sparta Sand Formation. All of these wells are used independently of each other (Reference 5, pp. 10, 11).

Based on the low permeability of the soil, well depth, and the lack of targets, it appears that ground water pathway samples will not be useful for HRS purposes; therefore, none will be taken during this ISA.

4.2 SURFACE WATER MIGRATION

The Castings USA site lies within the Gulf Coastal Ecoregion. The facility sits on relatively flat terrain. The majority of the site drainage is northeastward to the Missouri Pacific Railroad "V-ditch". The remainder tends to flow northwesterly to a drainage ditch along Old Dollarway Road. The railroad "V-ditch" flows to an unnamed intermittent tributary about 0.75 miles southeast of the site. This unnamed intermittent tributary flows to Lake Pine Bluff approximately one mile east of the site. Overflow drainage from Lake Pine Bluff flows is to Lake Lanhofer. Drainage from Lake Lanhofer is northeasterly into the Arkansas River (Reference 2; Reference 5, p. 12) (Figure 3; Figure 6).

There are no Federal or State Managed Areas that fall within a four (4) mile radius of the site. However, there are three (3) Federal and State managed areas that fall within a 15-mile radius of the site. These areas are listed below (Reference 8):

Federally Managed Areas

Pine Bluff Arsenal (Department of Defense)

State Managed Areas

Byrd Lake Natural Area

Taylor Woodlands Natural Area

In addition to the three Federal and State Managed area, there is the Rose Pogonia Preserve, a privately owned area. There are no Federal or State Endangered species within a 15-mile radius.

There are 17 public parks and playgrounds totaling more than 900 acres within a four (4)-mile radius of the site. No ecologically sensitive water bodies exist in the vicinity of the site (Reference 5, p. 14, 15).

The population within a four (4)-mile radius of Castings USA depends upon ground water supplied by community wells, which is obtained by General Waterworks Corporation of Pine Bluff, to meet their drinking water needs. None of the population within a four (4)-mile radius relies on surface water for drinking water purposes. There are no surface water intakes utilized for drinking water within 15-miles downstream of the site (Reference 5, pp. 13, 15).

The probability for surface water contamination is moderate. The facility sits on relatively flat terrain. The soil infiltration rate is slow, but a high water table allows for surface water drainage. Drainage from the site is slow. There are small on site drainage ditches on site and off site which help drain the site. The drainage ditches flow to an unnamed intermittent tributary about 0.75 miles southeast of the site. This unnamed intermittent tributary flows to Lake Pine Bluff approximately one mile east of the site. There is no stressed vegetation in the area of the probable run-off route. The area is in a minimal flooding zone (Reference 5, p. 15) (Figure 3; Figure 7).

Based on the February 1998 site reconnaissance, sediment samples will be collected in the surface water pathway during the ISA.

4.3 SOIL EXPOSURE

The Castings USA site is currently inactive. During the February 1998 site reconnaissance, Raymond Johnson revealed that a contractor will be on site in the near future to make repairs to the roof and to clean up the remaining materials left on site after operations ceased. There are no residents on site. There are three (3) houses within 200 feet of the property. There are approximately 900 people that live within 0.25 miles of the site. The total population within a one (1)-mile radius of the site is approximately 8,000. Located within a 15-mile radius of the site are numerous parks and water recreation facilities such as the Arkansas River, Lake Pine Bluff, and Lake Lanhofer. There are no endangered species within a 15-mile radius of the site. There are approximately 914 residents within 0.25 miles of the site. The populations within a four (4)-mile radius are shown in Table 1 (Reference 2; Reference 5 p. 11, 18).

TABLE 1

ESTIMATED TOTAL POPULATION WITHIN A FOUR (4)-MILE RADIUS OF THE SITE

Distance Ring	Population
Onsite	0
0 - 1/4 mile	914
1/4-1/2 mile	2686
1/2-1 mile	4457
1 - 2 miles	7170
2 - 3 miles	28840
3 - 4 miles	8953
TOTAL	53020

No areas of stressed vegetation or excessive blowing of dust were noted on or around the site. There are no schools or day care facilities within 200 feet of the site (Reference 2; Reference 5, p. 18).

Based on previous analytical results from a site inspection at a neighboring facility and current on site conditions, surface soil samples will be collected to assess this pathway.

4.4 AIR MIGRATION

The air pathway does not appear to pose a threat at the Castings USA site since the facility is inactive. Several routine inspections were made at the facility in conjunction with the air permit. No air violations were reported at the site. All processing equipment has been removed from the site. No odor was observed during the site reconnaissance. There is no excessive blowing of dust to suggest a release to the air pathway. Air samples for the ISA will not be collected since this pathway does not appear to contribute significantly to the overall HRS score (Reference 2; Reference 3).

5.0 SAMPLING AND ANALYSIS PLAN

This SAP has been prepared according to methodologies and activities for conducting site inspections outlined in the Guidance for Performing Site Inspections Under the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), (U.S. EPA, September 1992, Directive 9345.1-05). Development of the sampling strategy was based on past operations, waste characteristics of suspected site contaminants, probable pathways of contaminant exposure and probable targets, and the potential areas of contamination based on the February 1998 on site

reconnaissance. The objectives of the field sampling activities are to define site waste characteristics, collect samples to attribute hazardous substance to site operations, collect samples to establish representative background levels, and provide sufficient data for the HRS package. The ADPC&E sampling team will be responsible for completing the tasks described in this section. The team will conduct all sample collection activities and perform associated field activities. They will also assist in sample documentation, preparation, and shipping. The ISA sampling event is scheduled for April 6-10, 1998.

5.1 ON SITE RECONNAISSANCE

Upon arriving at the site, ADPC&E personnel will conduct an on site reconnaissance to familiarize the sampling team with the Castings USA site. ADPC&E will (1) document current site conditions, (2) survey the sampling locations shown in this SAP, and (3) mark each sampling location. The ADPC&E Project Manager will confirm that the sample locations were appropriately selected, and choose alternative or additional sample locations if (1) proposed locations are inaccessible, or (2) a more appropriate sampling location can be found. Any deviation from the procedures in the SAP will be documented in a designated field logbook.

ISA sampling activities will occur within and adjacent to the boundaries of the site. Access to the public areas will be gained in accordance with Arkansas Pollution Control & Ecology Commission (APC&EC) Regulation No. 23. Access to private property will be gained through owners permission.

Before sampling activities commence, the ADPC&E Project Manager will conduct a meeting to review the Castings USA Health and Safety Plan (HASP) with the sampling team. The ADPC&E Project Manager and/or Inspector Supervisor will be authorized to stop any activities that do not meet compliance with the HASP or the SAP.

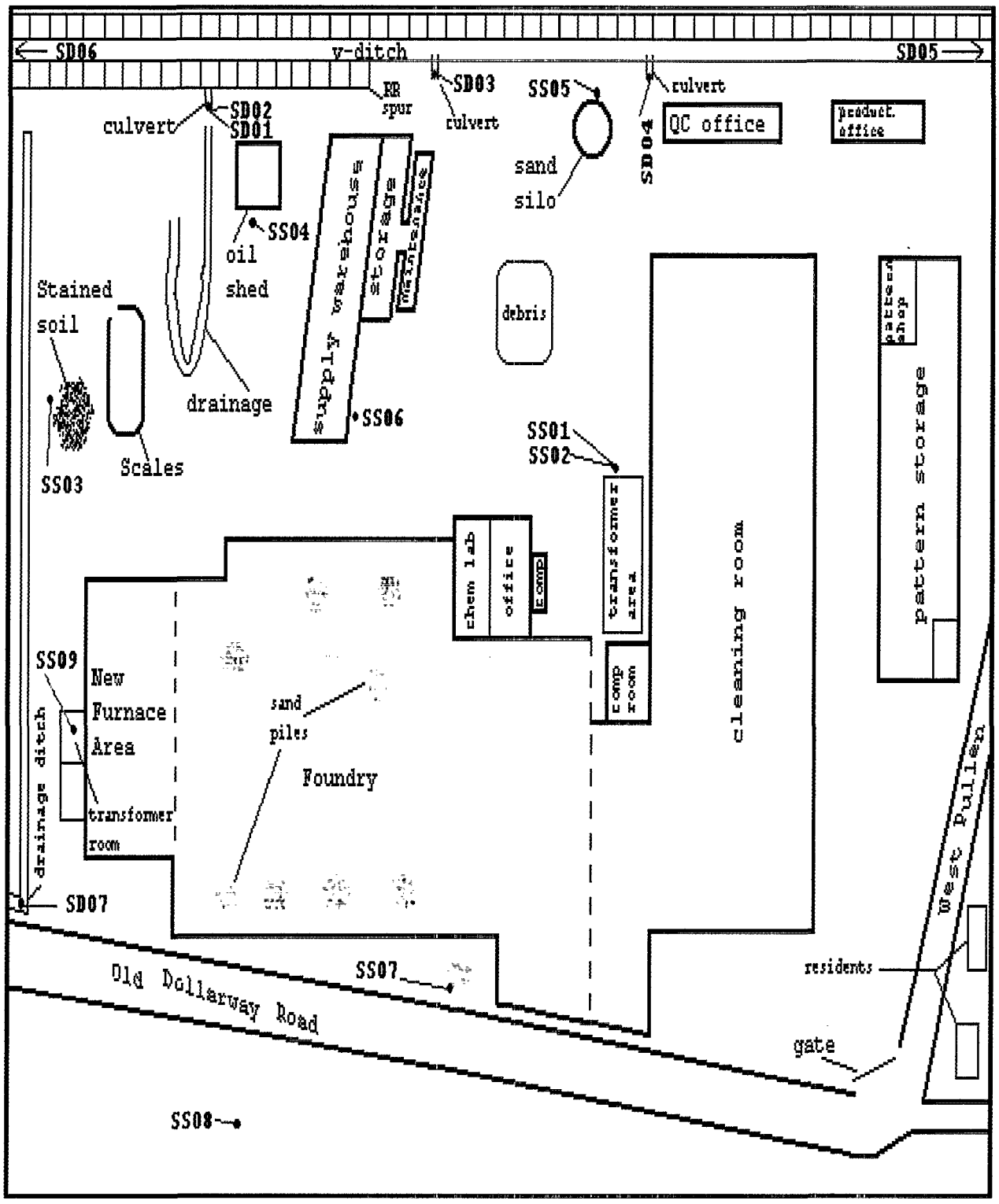
5.2 SAMPLING ACTIVITIES

Sampling for the ISA will focus on the surface water migration pathway and the soil exposure pathway. On site sampling will define the contamination and the migration of contaminants, if any, from the site through the soil exposure pathway. Background samples for the pathway of concern will be collected to attribute contaminants to past operations. Duplicate and QA/QC samples will be used to assess the precision, accuracy, representativeness, completeness, and comparability of the analytical laboratory data. Guidelines for collecting QA and QC samples can be found in Data Quality Objectives for Remedial Activities EPA, 1987).

ADPC&E personnel will collect surface soil and sediment samples on and off site. All samples collected will be analyzed for semivolatile organics, and Target Analyte List (TAL) Metals by the EPA Contract Laboratory Analytical Services Support (CLASS) program in accordance with EPA Routine Analytical Services (RAS) procedures. In addition to be analyzed for semivolatile organics and (TAL) Metals, three (3) samples (SS01, SS02, SS09), will be analyzed for pesticides/PCBs. The procedures to be used by the field sampling team for each sampling activity are described in detail in the following subsections.

CASTINGS USA, INC., SAMPLE LOCATIONS MAP

NORTH ↖



MAP NOT TO SCALE

FIGURE 10

ADPC&E will collect 16 samples, including duplicate samples, during the Castings USA. ISA sampling event. Samples will be collected using dedicated, presterilized disposable polyethylene scoops. Excess sample material will be returned directly to the sample location. Specific sample locations are shown in Figure 10. Sample locations and rationale are listed in Table 2. QA/QC information is listed in Table 3.

A background sample will be collected from a location representative of natural site conditions. Background sample depths will be consistent with surface soil and sediment sample depths. The background sample results will be used to determine the concentrations necessary to document Level II contamination. Constituents for analysis, analytical matrices and methods, container types, preservation techniques, and maximum holding times for soil samples are listed in Table 4.

In bound logbooks, the ADPC&E field sampling team will document all sampling activities by using black ink. Each page of the logbook will be dated, numbered, and signed by all individuals making entries. Errors will be corrected by crossing them out with a single line and dating and initialing the entry. The use of correction fluid is not permitted.

For each sample, the location, depth, time, station number, tag number, sample number, and any field observations will be recorded. The sampling team will determine the location of each sample by measuring from a fixed reference point with a tape measure. The sample location will be shown in the logbook by drawing a sketch of each area sampled. The ADPC&E sampling team will also take color photographs of the sample locations to document site conditions and support the

TABLE 2
SAMPLE LOCATIONS AND RATIONALE

STATION NUMBER	PROPOSED SAMPLE LOCATION	RATIONALE
SS01	Transformer area next to cleaning room	To evaluate hazardous constituents, if any, in the soil exposure pathway.
SS02	Duplicate of SS01	To evaluate hazardous constituents, if any, in the soil exposure pathway.
SS03	Stained soil area on northwest side of the property	To evaluate hazardous constituents, if any, in the soil exposure pathway.
SS04	Area next to the oil shed	To evaluate hazardous constituents, if any, in the soil exposure pathway.
SS05	Area next to the sand silo	To evaluate hazardous constituents, if any, in the soil exposure pathway.
SS06	Area next to the supply warehouse	To evaluate hazardous constituents, if any, in the soil exposure pathway.
SS07	Sand pile on west side of the foundry building	To evaluate hazardous constituents, if any, in the soil exposure pathway.
SS08	Background sample; Vacant lot west of site	To evaluate natural constituents in the soil exposure pathway.
SS09	Transformer room on west side of foundry building	To evaluate hazardous constituents, if any, in the soil exposure pathway.
SD01	Culvert north of oil shed leading to V-ditch	To evaluate hazardous constituents, if any, in the surface water pathway.
SD02	Duplicate of SD01	To evaluate hazardous constituents, if any, in the surface water pathway.
SD03	Culvert east of supply warehouse leading to V-ditch	To evaluate hazardous constituents, if any, in the surface water pathway.
SD04	Culvert north of QC office leading to V-ditch	To evaluate hazardous constituents, if any, in the surface water pathway.
SD05	Downstream sample in V-ditch	To evaluate hazardous constituents, if any, in the surface water pathway.
SD06	Background sample; Upstream in V-ditch	To evaluate natural constituents in the surface water pathway.
SD07	Drainage ditch northwest of foundry building	To evaluate hazardous constituents, if any, in the surface water pathway.

TABLE 3
SUMMARY OF SAMPLES

Sample Matrix	No. of Samples (a)	No. of Field Duplicates (b)	No. of Lab QA/QC Matrix Samples
Surface Soil/Sediment (0-24 inches)	14	2	1

(a) Number of samples does not include field or laboratory QA/QC samples.
(b) Field duplicate samples are based on a sample frequency of one per 10 samples collected per matrix or concentration level.

TABLE 4
SAMPLE CONTAINERS AND PRESERVATIVES

Constituent For Analysis	Analytical Matrix	Container Type	Sample Preservation	Holding Time
RAS Organics (BNA)	Soil/Sediment	8 oz. glass	ice	10 days
RAS Inorganics (Metals)	Soil/Sediment	8 oz. glass	ice	180 days
Pesticides/ Aroclors (PCBs)	Soil/Sediment	8 oz. glass	ice	14 days

observations made in the logbook. Any administrative occurrences, conditions, or activities that affect the field work will also be recorded in the site specific logbook.

5.3 POST SAMPLING ACTIVITIES

After a sample is collected, the ADPC&E Project Manager will assure that each sample is properly documented and identified by using the appropriate EPA CLASS tags, seals, and chain-of-custody forms. Full sample containers will be placed in padded plastic bags and then placed in coolers. Packaged samples will also be preserved to 4^0 Celsius (C) with double-bagged ice.

The appropriate two copies of the chain-of-custody forms will be submitted with the samples to the CLASS laboratory. The other two copies will be submitted to the CLASS sample management officer, and to EPA as an attachment to the final report. The documentation records accompanying each cooler will be sealed in a plastic bag and taped securely to the inside of the cooler lid. Each cooler will be labeled with a clearly visible return address. The cooler lids will be secured with strapping tape that encircles the cooler's ends at least twice. A chain-of-custody seal will be placed at the front left and rear right sides of the cooler so that anyone opening the lid will break the chain-of-custody seals. Custody procedures specified in the CLASS Statement of Work (SOW) will be followed by the laboratory from the time that the sample is received to the time that the sample is discarded.

The samples will be shipped promptly through Federal Express overnight service to the appropriate CLASS laboratory for analysis. EPA will provide the name and address of the CLASS laboratory

before the sampling activities begin. CLASS shipping guidelines will be referenced for detailed information on completing this activity. After all appropriate documentation has been completed, the Project Manger will contact Carol Shaeffer (703-519-1461) at CLASS.

ADPC&E will collect and dispose of all investigation-derived wastes (IDW) in accordance with Management of Investigation-Derived Wastes During Site Inspections, (USEPA, 1991). These methods include (1) returning any unused portions of soil to the sampling location, (2) cleaning PPE and disposable equipment, and (3) eliminating the use of decontamination solvents. All disposable protective clothing and equipment - including Tyvek suits, booties, and gloves - will be collected, double-bagged, and disposed of according to current EPA guidance on IDW.

Non-dedicated sampling equipment is not expected to be used. All soil and sediment samples will be collected with dedicated pre-sterilized polyethylene scoops. These scoops will be disposed as IDW.

6.0 HEALTH AND SAFETY PLAN

This Health and Safety Plan (HASP) was prepared specifically for the ISA sampling activities being conducted at the Castings USA site. The HASP contains specific health, safety, and emergency response requirements necessary to conduct the ISA sampling activities. The purpose of this plan is to provide site and task specific operating procedures that will ensure the health and safety of the ADPC&E personnel and any official visitors. This plan includes provisions for preventing, responding to, and reporting injuries, illnesses, and environmental emergencies.

Before any field work begins, all field personnel will be briefed on their work assignments and safety procedures contained in this HASP. Each person will have access to a copy of this document and will sign a form (Attachment 1) stating that they have read, understood and will abide by the information presented in this document.

6.1 HAZARD ASSESSMENT

Moderate safety risks are associated with the sampling activities that will be conducted during the ISA. Such risks include releases of hazardous constituents from contaminated soil, groundwater, site sources, and related materials handling risks (i.e., lifting, hand and foot injuries). Possible chemical exposures associated with this project are semivolatile organics, polychlorinated biphenyls (PCBs), and heavy metals (Attachment 2). Each of these constituents and associated hazards are discussed in the following paragraphs.

Organic compounds can affect the body if they are inhaled, ingested, or absorbed through the skin. Many organic compounds can cause irritation to the eyes, nose, throat, and skin. With exposure to high concentrations, irritating effects are more pronounced, and a person may begin to feel weak, dizzy, drowsy, and become unconscious. If the skin is exposed, immediately flush the exposed area with copious amounts of water while removing clothing, if necessary. If the eyes are exposed, immediately flush the eyes with copious amounts of water, lifting the lower and upper lids occasionally. If a large quantity of organic compounds is inhaled, immediately move the person fresh air and assist in ventilation, if necessary. If the compounds have been swallowed, do not induce vomiting. In all cases, seek medical attention as soon as possible.

PCBs can affect the body if they are inhaled or are absorbed through the skin. PCBs can cause gastrointestinal disturbances, hyperpigmentation, and numbness of the extremities. Since PCBs are a skin irritant and a possible sensitizer, persons with pre-existing skin disorders may be more susceptible to the effects of this agent. If the skin is exposed to PCBs, immediately flush the exposed area with copious amounts of water (Attachment 2).

Heavy metals can affect the body if they are inhaled, ingested, or absorbed through the skin. Exposure can cause nausea and vomiting, diarrhea, headache, abdominal pain, dizziness, intense thirst, metallic taste, drowsiness, and a rapid pulse and respirations. If the skin is exposed, immediately flush the exposed area with copious amounts of water while removing clothing, if necessary; if the eyes are exposed, immediately flush the eyes with copious amounts of water, lifting the lower and upper lids occasionally. If a large quantity is inhaled, immediately move the person to fresh air and assist in ventilation, if necessary. If the compounds have been swallowed, do not induce vomiting. In all cases seek medical attention as soon as possible.

6.2 AUTHORITIES AND RESPONSIBILITIES

The key contacts for the Castings USA, Inc. site ISA are:

- EPA Contact
  Mr. William Kirchner, (6SF-RA)
  Site Assessment Manager
  U.S. EPA, Region 6
  1445 Ross Avenue
  Dallas, Texas 75202-2733
  Phone No: (214) 665-8332

- ADPC&E Contact
  Mr. Jay Rich, Project Manager
  Hazardous Waste Division
  8001 National Drive
  P.O. Box 8913
  Little Rock, Arkansas 72219-8913
  Phone No: (501) 682-0857

- ADPC&E Contact
  Tammie Hynum, Hazardous Waste Inspector Supervisor
  Hazardous Waste Division
  8001 National Drive
  P.O. Box 8913
  Little Rock, Arkansas 72219-8913
  Phone No: (501) 682-0856

The Project Manager, Jay Rich of ADPC&E, will be responsible for ensuring that all work performed for this specific sampling activity is in accordance with the site HASP, SAP, TWP, and the (QAPP). The Project Manager and Inspector Supervisor will effectively conduct field activities, enforce disciplinary action when health and safety requirements are not being followed or when unsafe practices occur, and oversee work practices to verify they are according to this document. The Project Manager will determine all matters relating to schedule, cost, and personnel assignments that are not safety related.

The Project Manager and/or Inspector Supervisor will be present during all the sampling activities and will be responsible for all health and safety activities. They will be responsible for ensuring the provisions of this document are complied with, monitoring conformance with safety and emergency procedures, giving the safety briefing, and seeing that the safety and sampling equipment are maintained. The Project Manager is responsible for maintaining a log reflecting hazards, exposures, and implemented control procedures. The Project Manager and Inspector Supervisor have the authority to suspend work activities if the health and safety of the personnel are in danger. The Project Manager will be notified of the suspension of field activities. A safety briefing will be conducted by the Project Manager at the start of each field day.

6.3 SITE CONTROL

Access to potentially hazardous areas of the site must be controlled to reduce the occurrence of physical injury and chemical exposure to field personnel, visitors, and the public. The following site control measures will be strictly followed at all times.

The Project Manager must ensure that no unofficial visitors enter the site and discourage official visitors from entering hazardous areas. Official visitors may be permitted to enter the support zone only if they agree to abide by the provisions of the HASP and sign a safety briefing form (Attachment 1). Official visitors must be informed of the dangers that could be encountered at this site. If they enter the exclusion zone, they must be accompanied by ADPC&E personnel who are trained according to OSHA (29 CFR 1910.120). Official visitors entering the exclusion zone will be expected to wear the appropriate level of protection.

An exclusion zone will be set for site specific areas, if necessary, for completing site work. Only ADPC&E personnel and persons authorized by ADPC&E personnel will be allowed in this area. No smoking, eating, or drinking will be permitted in this zone.

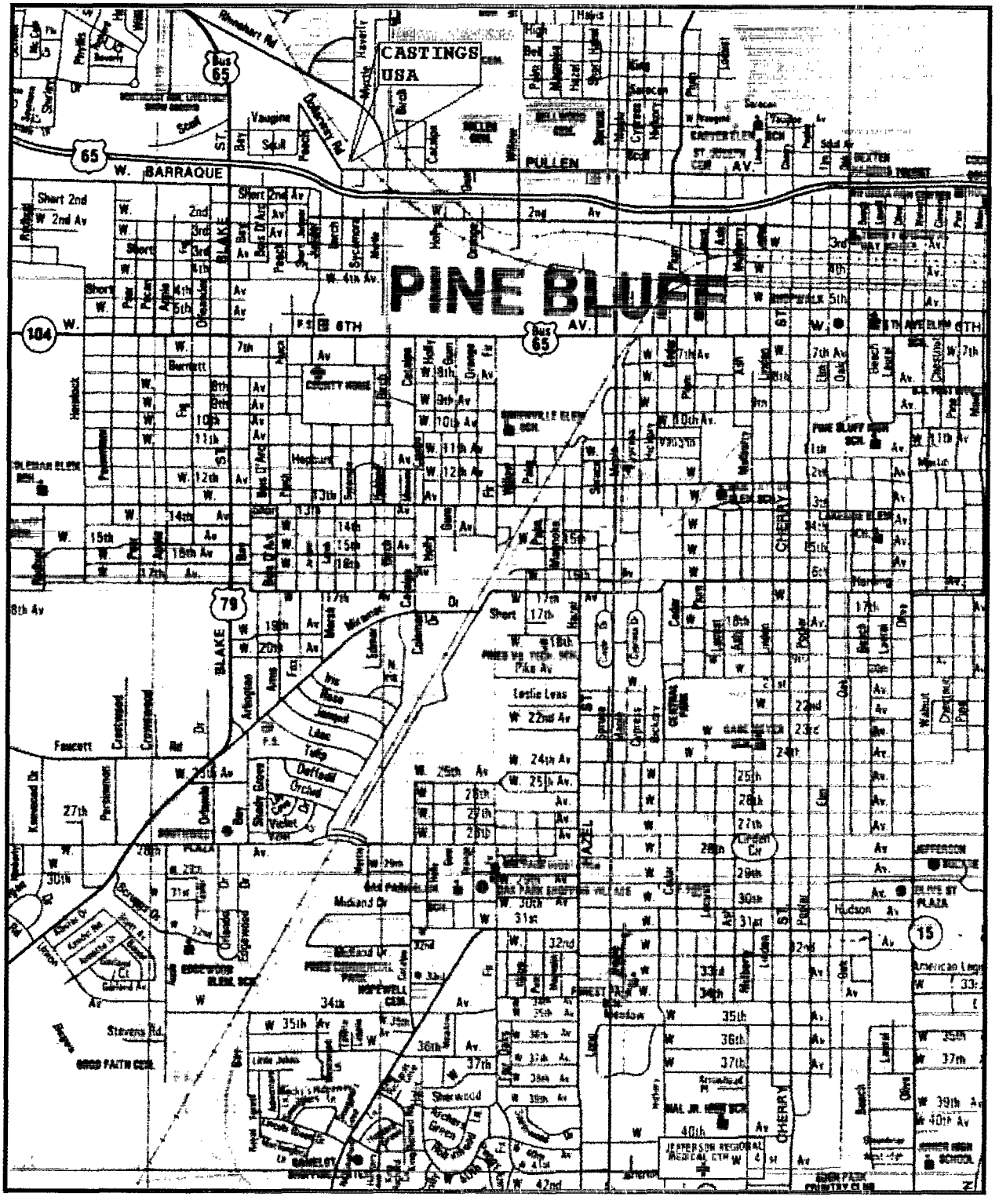
Any personnel that are not required for specific site tasks being conducted in the actual sampling areas should remain in the support zone. Vehicles, clean equipment, first aid equipment and a portable eyewash station should remain in the support zone unless they are needed in the exclusion zone. If personnel will be working outside hearing range of one another, a tested communication system must exist among all personnel. Voice communication is adequate if all personnel are working within close proximity.

Before initiating field activities, the Project Manager will plan emergency routes and discuss them with all personnel conducting field work for this project. Emergency planning will include establishing an evacuation route from work areas in case of an emergency. The Project Manager will also find the nearest telephone to be used in case of an emergency. The location of the nearest hospital and telephone number will be posted in the support zone throughout the scope of the work.

Jefferson Regional Memorial Center is the nearest hospital to the site. It is located on West 41st Avenue, two (2) blocks west of Cherry Street in Pine Bluff, Arkansas (Figure 11). The telephone number for the Jefferson Regional Memorial Center is 870-541-7100. In addition, 911 should be dialed for all emergencies.

LOCATION OF NEAREST HOSPITAL

NORTH ⇑



MAP NOT TO SCALE **FIGURE 11**

Anyone needing medical attention will be evacuated immediately from the sampling area. Personnel will not risk their own lives to attempt a rescue if adequate personal protective equipment is not available. Only qualified personnel will give first aid, CPR, or attempt to stabilize an individual. Professional medical assistance will be obtained as soon as possible.

These steps will be followed in case of injury:

1. Remove the injured or exposed person from the hazardous area. Stabilize the victim before movement, if possible, particularly in case of neck or back injuries.

2. Perform necessary decontamination of the person to prevent contamination of the personnel performing first aid.

3. Render first aid or CPR if necessary and trained to do so.

4. Perform other necessary decontamination after the affected person is stabilized.

5. Obtain paramedic services or ambulance transport to the hospital. If decontamination cannot be completed due to individual injuries, advise medical staff of the type of contamination.

6. Evacuate other personnel in the area until the site is determined safe by the Inspector Supervisor.

7. Contact ADPC&E management (Section 6.2) with the details of the incident and corrective actions.

8. Write a report of the incident within 24 hours of the occurrence and submit the report to the Inspector Supervisor.

In addition, the Project Manager will have the following items immediately available to provide assistance to field personnel in case of injury or illness:

1. First aid kit, containing supplies for initial treatment of minor cuts and abrasions, severe lacerations, shock, heat stress, eye injuries, skin irritation, thermal and chemical burns, and immobilization of fractures.

2. Supply of clean water for flooding exposed skin areas or treatment of a heat stroke.

3. Soap or hand cleaner and towels.

4. Emergency eyewash.

5. Portable cooler with drinking water and ice.

6.4 PERSONAL PROTECTIVE EQUIPMENT

Sampling activities at the Castings USA site will be conducted in modified Level D personal protection. Personnel working within the actual sampling areas will be required to wear, at a minimum, long pants, long sleeve shirt, steel-toed boots, safety glasses, and chemical resistant gloves. In the event field conditions change, protection will be upgraded to an appropriate level.

6.5 EMPLOYEE TRAINING REQUIREMENTS

Workers within the sampling areas are required to have:

- 40 Hours of health and safety training for hazardous waste work.
- Three days of supervised field experience on a hazardous waste site.
- Eight hour refresher training within the last 12 months.
- Respirator Fit Test within the last 12 months.

6.6 MEDICAL SURVEILLANCE

All personnel involved in Level D, C, B, or A work activities will have a medical examination within the past year, including:

- physical examination
- pulmonary function testing
- blood chemistry evaluation
- urine chemistry evaluation
- review of an employee's occupational and medical history

The purpose of the physical examination is to (1) obtain background blood and urine chemistries, (2) note conditions that could increase susceptibility to heat stress, and (3) determine the ability

of personnel to wear respirators. Employees who are clearly unable to perform the required tasks based on medical history and physical examination (i.e., those with lung, heart, liver, or kidney functional impairments) will be prohibited from working in contaminated areas. No individuals will be allowed to work on site wearing contact lenses.

Additional medical examinations will be performed whenever there has been actual or suspected exposure to contaminants following injuries or temperature stresses, or upon experience of exposure symptoms. All medical examinations will be performed by an occupational designated or approved physician.

7.0 QUALITY ASSURANCE PROJECT PLAN (QAPP)

This QAPP has been prepared to provide specific guidance to the ADPC&E team for sampling activities at the Castings USA site. All QA related issues will be conducted according to EPA Interim Guidance and Specifications for Preparing Quality Assurance Project Plans (U.S. EPA, 1980b). All personnel involved in this sampling event will be required to review the ADPC&E Superfund Branch QAPP (Q-TRAK 95-031), which addresses the 16 elements of a QAPP. The following subsections discuss site specific quality assurance issues.

7.1 QUALITY ASSURANCE OBJECTIVES

The main QA program objective is to provide data that complies with EPA analytical criteria for environmental measurements. Guidelines are found in Test Methods for Evaluating Solid Waste-Physical/Chemical Methods, SW-846 (USEPA, 1982, Second and Third Edition). Strict chain-of-

custody control is required for (1) all samples and records, (2) all data transmissions, reductions, and transcriptions, and (3) all other type of documentation.

ADPC&E will conduct all ISA activities in accordance with the ADPC&E Quality Assurance Management Plan (QMP). Jean Koeninger is the ADPC&E Inactive Sites Branch Manager. Tammie Hynum is the Hazardous Waste Inspector Supervisor. Jeff Ruehr is the ADPC&E Quality Assurance (QA) Officer. Jay Rich is the ADPC&E Superfund Project Manager and will oversee Quality Control (QC) performance for this project. ADPC&E Hazardous Waste Division personnel will conduct all field activities at the Castings USA site.

Jay Rich is the ADPC&E Project Manager. He will be responsible for maintaining communication with the ADPC&E Hazardous Waste Inspector Supervisor and the QA Manager and confirming project activities are done according to the scope of work specified in this TWP. He is also responsible for (1) assigning QC coordinators for deliverable products, (2) managing, monitoring, and documenting the quality of all work produced or generated during sampling, and (3) coordinating with the EPA Site Assessment Manager (SAM). Problems encountered during the assignment activities will be communicated to, and resolved, by Jay Rich.

Mr. Jeff Ruehr is the ADPC&E QA Officer. He is responsible for independent review, assessment, and consultation within ADPC&E and with EPA for all work conducted by ADPC&E in relation to quality assurance. The QA Officer is responsible for audits and reviews of all work

conducted. The QA Officer also issues recommendations to the technical staff and management about quality performance. He will also provide recommendations and orders, as required, for corrective action on all aspects of work that do not meet ADPC&E and EPA standards. He will confirm, to the ADPC&E Project Manager, compliance with corrective action orders and recommendations.

7.2 QUALITY ASSURANCE AND QUALITY CONTROL

QC samples will be used to assess the precision, accuracy, representativeness, completeness, and comparability of analytical laboratory data. Guidelines for collecting minimum QA/QC samples are found in Data Quality Objectives for Remedial Response Activities (USEPA, 1987). QA/QC samples will be collected for each medium at the frequency specified in Table 4. Field duplicate samples will be collected at specified frequencies and are used to document precision. Field duplicates will be collected by using the same procedures specified for the medium.

The laboratory will be required to analyze interlaboratory split and matrix samples to assure the precision and accuracy of the analytical laboratory instruments, as specified by the CLASS SOW.

For sample data to be considered valid for enforcement purposes, samples must be traceable from the time of collection through chemical analysis and final disposition. EPA has developed CLASS chain-of-custody forms for this purpose. ADPC&E will obtain the necessary paperwork from EPA Region 6 and complete the chain-of-custody forms. CLASS sample labeling and shipping

guidelines will be referenced for detailed information on completing this activity.

7.3 ANALYTICAL PROCEDURES

The procedures for the chemical analysis of the samples will conform to methods described in Test Methods for Evaluating Solid Waste - Physical/Chemical Methods (SW-846) (USEPA, 1982). The CLASS laboratory will be responsible for following the appropriate QA/QC procedures and methodologies to ensure data quality.

7.4 DATA REDUCTION, VALIDATION, AND REPORTING

Data reduction will be performed by the CLASS laboratory in accordance with Contract Laboratory Program Statement of Work for Inorganics Analysis; Multi-Media, Multi-Concentration, (USEPA OERR, 1990), Test Methods for Evaluating Solid Waste, Physical/Chemical Methods (SW-846) (USEPA 1986), and 40 Code of Federal Regulations (CFR) Part 261, Appendix II. If the analytical data do not meet the minimum data quality objectives, the laboratory will start the necessary corrective actions. All data falling outside the QC limits will be flagged by the laboratory.

Validation of all measurement data will be based on adherence to method protocol and the prescribed QC procedures. Data validation forms for organic and inorganic contract laboratory data packages will be completed by CLASS laboratory data validation personnel. These checklists are used to evaluate all of the steps leading to the calculation of the final analytical results, including (1) sample holding times, (2) instrument calibration, (3) blanks, (4) check samples, (5)

sample dilutions, (6) precision of duplicate analyses, (7) matrix spike recoveries, and (8) data completeness. All data elements will be qualified as "acceptable," "provisional with problems noted," or "unacceptable," according to EPA data qualifiers. A data summary report will be prepared and submitted to EPA after ADPC&E has reviewed the analytical results.

7.5 INTERNAL QUALITY CONTROL CHECKS

QC checks of work assignment activities are conducted internally by the Branch Manager, Inspector Supervisor, QA Officer, or a senior technical specialist who has QC experience and is not associated with the particular work assignment. The internal QC check includes, at a minimum, the following areas:

- Adequacy of data collection and management procedures
- Adherence to established sampling and collection methods
- Implementation of health and safety procedures
- Compliance with applicable laws and regulations
- Compliance with chain-of-custody procedures

7.6 PERFORMANCE AND SYSTEM AUDITS

Audits are routinely conducted in QA programs to assess and document technical performance. Internal QA audits are based on the audit checklists in Appendix A of EPA's Enforcement Considerations for Evaluation of Uncontrolled Hazardous Waste Disposal Sites by Contractors (USEPA, 1980a) The audit checklists are adapted, as needed, to the specific QA audit. If this is not possible, the QA Officer will develop the checklist.

Upon completion of a QA audit, the program QA Manager submits a report to the Branch

Manager and Inspector Supervisor. Deficiencies and recommended corrective actions are referred to the Project Manager for immediate action. Any corrective action taken by the Project Manager is reported, in writing, to the QA Officer, Branch Manager, and Inspector Supervisor.

7.7 CORRECTIVE ACTIONS

An effective QA program requires rapid, effective, and thorough correction of QA problems. Corrective action reduces the possibility of questionable data or documentation. To provide a complete record of QA activities, all QA problems and corrective actions are documented in writing to the QA Officer. Corrective action is not complete until the problem has been effectively and permanently resolved. The QA Officer will monitor follow-up action to confirm that the problem does not recur.

Major corrective actions for specific work assignments will be documented and submitted to the Inspector Supervisor. The Inspector Supervisor and Project Manager jointly define responsibilities for scheduling, performing, and documenting the required action, and for verifying its effectiveness.

7.8 QUALITY ASSURANCE REPORTS TO MANAGEMENT

The Branch Manager, Inspector Supervisor and Project Manager report to ADPC&E's Hazardous Waste Division Chief on the status of any required corrective actions and any proposed revisions to the QAPP. QA/QC problems and corrective measures are reported to EPA according to the Quality Assurance Management Staff (QAMS) document (USEPA, 1980b).

TASK WORK PLAN DOCUMENTATION LOG SHEET

SITE:	**Castings USA, Inc.**
IDENTIFICATION NUMBER:	**AR0002187987**
CITY:	**Pine Bluff**
COUNTY:	**Jefferson**
STATE:	**Arkansas**

REFERENCE NUMBER	DESCRIPTION OF REFERENCE
1	Arkansas Department of Pollution Control and Ecology, Latitude and Longitude Worksheet for Castings USA, Inc. Site in Pine Bluff, Jefferson County, Arkansas, AR0002187987.
2	Rich, Jay, Arkansas Department of Pollution Control & Ecology, General Field Logbook, Castings USA, Inc. Site, p. 43, AR0002187987, February 1998.
3	Arkansas Department of Pollution Control & Ecology, Air Division, Central Records File CSN# 35-00026 Air Permit File on Castings USA, Inc., Pine Bluff, Jefferson County, Arkansas.
4	United States Environmental Protection Agency, Potential Hazardous Waste Site Identification Form, Castings USA, Inc., Pine Bluff, Jefferson County, Arkansas.
5	Porter, Elton, Senior Technician for U.S. Geological Survey, Water Resources Division, telephone conversation with Mary Ann Adams, Arkansas Department of Pollution Control & Ecology, August 1992, Re: River/Stream/Lake flows.

REFERENCE NUMBER	DESCRIPTION OF REFERENCE
6	Arkansas Game and Fish Commission, Fisheries Division, telephone conversation with Mary Ann Adams, Arkansas Department of Pollution Control & Ecology, August 1992, Re: Lake flows.
7	U.S. Geological Survey, Water Resources Data Report Arkansas Water Year 1990.
8	Arkansas Department of Pollution Control and Ecology, 1997, Site Inspection Report for Fox Brothers Warehouse Site in Pine Bluff, Jefferson County, Arkansas, ARD983277260.
9	United States Department of Agriculture, "Soil Survey, Jefferson County, Arkansas," December 1980.

ATTACHMENT 1

SAFETY BRIEFING DOCUMENTATION FORM

I represent that I have been informed of the hazards associated with performing work at the Castings USA, Inc. site. I have also been briefed as to the contents of the Task Work Plan (TWP), specifically Section 6 containing the Health and Safety Plan (HASP). I agree to perform my work in accordance with it.

_____
Name (Print)

_____ Signature

_____
Date

_____
Agency

Castings USA, Inc. Site, Pine Bluff, Arkansas
Project Name

ATTACHMENT 2

Polychlorinated biphenyls

Synonyms: PCBs
Appearance and Odor: Colorless crystals.

PERMISSIBLE EXPOSURE LIMIT (PEL)

The current OSHA standard for polychlorinated biphenyls is 1 mg/m^3 for products containing 42 percent chlorine and .5 mg/m^3 for products containing 54 percent chlorine, determined by averaging over an eight-hour work shift. NIOSH recommends that exposure to PCBs in the workplace be limited to 1 microgram/m^3 averaged over a 10-hour workday, and a 40-hour workweek. The American Conference of Governmental Industrial Hygienists has recommended for PCBs a Threshold Limit Value of 1 mg/m^3 (for 42 percent chlorine) and .5mg/m^3 (for 54 percent chlorine).

MONITORING AND MEASUREMENT PROCEDURES

Measurements to determine employee ceiling exposure are best taken during periods of maximum expected concentrations of PCBs. Air and surface wipe samples should be collected in all areas potentially contaminated by any incident.

HEALTH HAZARD INFORMATION

PCBs can affect the body if they are inhaled, or are absorbed through the skin (either by direct contact or by contact with contaminated surfaces, clothing and equipment).

Effects of exposure

PCBs can cause gastrointestinal disturbances, elevated serum enzyme and triglyceride levels, hyperpigmentation, and numbness of the extremities.

RECOMMENDED MEDICAL PROCEDURES

A physician should be contacted if anyone develops any signs or symptoms and suspects that they are caused by exposure to PCBs. The following medical procedures should be made available to each employee who is exposed to PCBs at potentially hazardous levels:

1. Employees should be screened for history of certain medical conditions (listed below) that may place the employee at increased risk from PCBs exposure.

   • Skin disease: PCBs are a skin irritant and possible sensitizer. Persons with preexisting skin disorders may be more susceptible to the effects of this agent.

   • Nervous system disease: In persons having nervous system diseases, exposure to PCBs can exacerbate symptoms.

   • Liver disease: Although PCBs are not known as a liver toxin in humans, the importance of the liver in the biotransformation and detoxification of foreign substances should be considered before exposing persons with impaired liver function.

2. Any employee developing the above-listed conditions should be referred for further medical examination.

EMERGENCY FIRST-AID PROCEDURES

In the event of an emergency, institute first-aid procedures and send for first-aid or medical assistance.

1. **Skin Exposure**: If PCBs get on the skin, immediately flush the contaminated skin with water. If PCBs penetrate through the clothing, remove the clothing immediately and flush the skin with water. If irritation persists, get medical attention.
2. **Swallowing**: When PCBs have been swallowed, get medical attention immediately.
3. **Rescue**: Move the affected person from the hazardous exposure. If the person has been overcome, notify someone else and put into effect the established emergency rescue procedures. Do not become a casualty. Understand the facility's emergency rescue procedures and know the locations of rescue equipment before the need arises.

PERSONAL PROTECTION

1. The use of respiratory protection for those involved in cleanup operations requires that a respiratory protection program be instituted and that the respirators selected be approved by the Mine Safety and Health Administration and by the National Institute for Occupational Safety and Health. The respiratory protection program should include training of workers regarding the proper use, fit testing, inspection, maintenance, and cleaning of respirators. The program should be evaluated regularly.
2. Employees who may come into contact with PCBs should be provided with, and required to use, impervious or disposable clothing.
3. Clothing that is contaminated with PCBs should be placed in approved containers and disposed of.

LEAK AND SPILL PROCEDURES

1. Persons not wearing protective equipment and clothing should be restricted from areas of leaks or spills until cleanup has been completed.
2. Both horizontal and vertical surfaces should be dry vacuumed with a vacuum-cleaning system equipped with a high efficiency particulate filter.
3. Surfaces should be washed with alkaline or nonionic synthetic detergents in water.

WASTE DISPOSAL METHOD

Not available.